USER'S MANUAL (Product Number: THC)

Throttle Controller

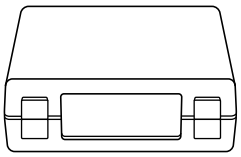
3 **drive ·COMPACT**
THROTTLE CONTROLLER

Thank you for purchasing PIVOT product.

Please read this manual carefully and keep it for future reference.

●If this product is given to another user, make sure to include this User' s Manual.

Product +



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After installation, make sure to carry out "Initial Settings".

After having installed this product, make sure to make settings for your car' s special characteristics by carrying out the "Initial Settings" on Page 5. If the "Initial Settings" are not carried out, a **Check Engine Light** may go on. Also, the unit will remain in **NORMAL Mode** even if the Mode is switched.

Worried about Installation?

If you are worried about carrying out wiring or other installation procedures please consult your dealer.

Only use 3-drive Specialized Harness.

Using another type of harness will cause troubles and failure; use only the 3-drive specialized harness.

Only use with Manufacturer's Original ECU.

Do not install this product if the ECU is not the original one or when a sub-ECU is being used.

Set to NORMAL Mode upon Removal of Product.

When uninstalling the product, make sure to return it to nor (NORMAL) Mode before carrying out any work. Reconnecting this product in a different mode may cause the Check Engine Light to come on.

Modifying this Product is Forbidden.

Under no circumstances should modifications or changes be made to this product. Doing so may cause damage not only to the product, but to the car and the operation of the car in which it is installed.

⚠WARNING

Improper use or disregard of these warnings may result in the injury or death of people.

- ●When making initial settings make sure to stop the engine and place in Parking or Neutral. It is dangerous to carry out these settings while the engine is running.
- ●Do not work in areas where there is excessive exhaust. Due to vehicle exhaust emission poisoning or fire may result in a damage to humans.
- ●Do not crush the cable. Please be careful that the cable does not get crushed by the seat rail or car door steel plate, nor cut by any sharp steel plate as this may cause a poor connection or an electric short leading to fire or other danger.
- ●While driving DO NOT operate switches or pay prolonged attention to the display; it is extremely dangerous.
- ●Make sure that all wiring and fastening down of the product does not interfere with driving nor be done in such a way as to cause poor connections.

⚠CAUTION

Improper use or disregard of these warnings may cause injury to persons, damage the product and/or other things.

- ●PIVOT Corporation accepts no responsibility, in any manner whatsoever, for damage and/or trouble to your vehicle or product, nor for any accidents that are the result of the misuse of this product.
- ●Please confirm that the type of vehicle you wish to install into is listed in the "List of Specialized Harnesses by Car Model for 3-drive · COMPACT" .
- ●When installing this product, we recommend that if technical knowledge becomes necessary please consult a qualified mechanic.
- ●If the device is improperly installed or settings have been improperly made a Check Engine Light may go on.
- ●Do not use electrotap.
- ●Wiring should be carried out using the attached "cut connector" or by soldering, make sure to securely insulate all wiring parts with insulation tape, and confirm that no wires are sticking out.
- ●Please wipe with a soft dry cloth (a lens cloth).
- ●Please do not use alcohol or benzine.
  This may cause damage to the painted surface or cracks in the plastic.
- ●Do not, in any manner, process, take apart, or make changes to this product.

Please check the contents of the package

Main Unit
[60×22×55 (D) mm]

Black Extension Cord

Double-sided Tapes
[25×35mm] ×2

Cut Connectors
×4

Zip tie
×2

User's Manual
(This Book)

Features

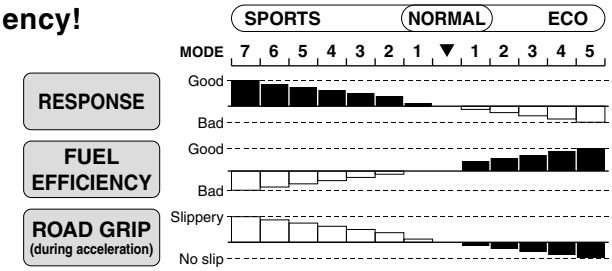
SPORTS & ECO

Control Acceleration and Fuel Efficiency!

SPORTS Mode is for higher response driving.
ECO Mode is for better fuel efficiency, more comfort or when on slippery roads.

Select the kind of response to match your driving.

3-drive・COMPACT enables changing the response for electronic throttle car models and gives you, the driver, the freedom to select the type of acceleration response you need or desire: quick acceleration for speedy driving to slower acceleration for ECO-driving.



※ Even in ECO Mode, if rapid acceleration is carried out over and over again fuel efficiency will not increase.

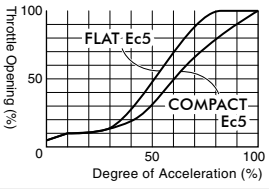
Performance

SPORTS MODE	High response for sporty situations. (ideal for circuit, mountain driving, etc...)
ECO MODE	Low response for Eco-driving situations. (perfect for city and fuel conscious driving)
NORMAL MODE	Standard Performance.
ACCELERATION MONITOR	Displays the amount of pressure on the accelerator and helps to prevent poor fuel efficiency due to over acceleration.
3 MODES 12 STEPS	One-touch selection between 3 modes and 12 steps. (SPORTS Mode = 7 steps, ECO Mode = 5 steps)
COMPACT ALL-IN-ONE BODY	This compact all-in-one body makes it possible to install in out of the way places such as storage box or near the steering wheel.
MODE MEMORY + SAFETY START	Select from three modes in which to start the engine: "Same as Last" Mode, "Normal" Mode or in "Safety" Mode which restarts the engine in SP3 mode when the setting is SP4 or above.
EASY INSTALLATION	Easy installation using the specialized model specific harness. (sold separately)

Improved Results in ECO Mode

3-drive・COMPACT in ECO Mode reduces the output signal at full throttle to 80% of that when using a standard unit, hence increasing fuel efficiency.

(Graph = Comparison of Change for 3-drive・COMPACT and FLAT. (SUZUKI SWIFT (ZC31S))



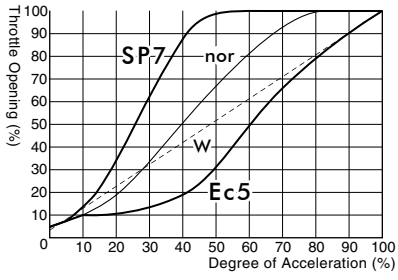
INITIAL SETTINGS MODE	Stable balanced control is possible by running the "Initial Settings" program after having finished installation; this will help reduce troubles caused by voltage differences found in each car model.

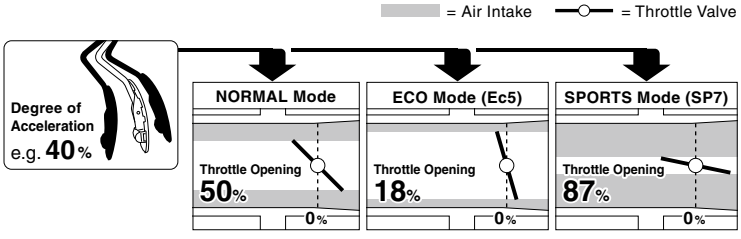
Safety

1. Prevents sudden starts by reverting to same response as under normal setting.
2. Normal Control when in Reverse. (wiring where necessary)
3. Returns to Normal in case of faulty wiring or circuitry. ※1
4. Discrete 2 Signal Control for Safety.

※1 When using the Diagnostic Monitoring Connector for running tests, disconnecting the OBD connector will not cause any harm to the car.

Examples of Throttle Opening





SP7= MAX. SPORTS Mode (7 steps) **W**= For models with wire-type throttle
Ec5= MAX. ECO Mode (5 steps) **nor**= Standard Performance
·SUZUKI SWIFT(ZC31S)

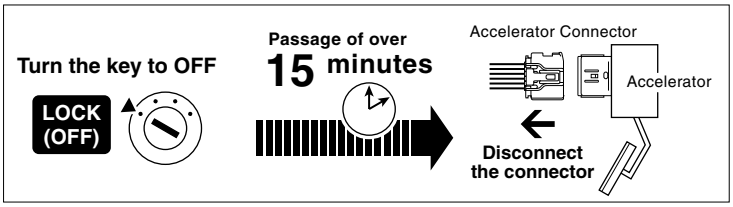
※ Fine tune control with 7 steps for SPORTS Mode and 5 for ECO Mode.
※ In some car models with a Valvematic engine, control is carried out by the exhaust valve rather than the throttle valve.

procedure 1 Connecting The Wires

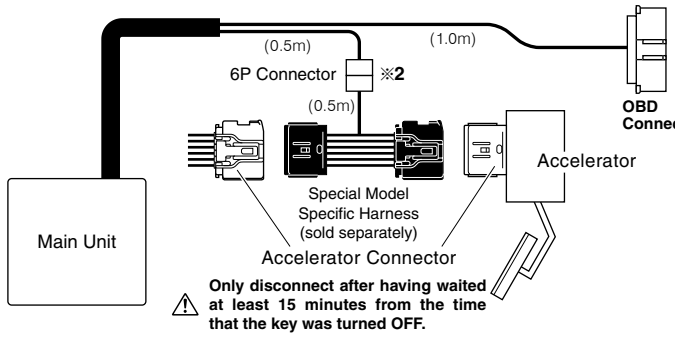
Preparation for Wiring

⚠ Only disconnect the accelerator connector after having waited **at least 15 minutes from the time that the key was turned OFF.**

Depending on the type of vehicle, if the connector is disconnected before the ECU power is switched OFF the Check Engine Light may go on. (How to Turn Off the Check Engine Light ⇒ Page 7)



Basic Wiring When installing, make sure to use the correct Specialized Harness for your model of car.



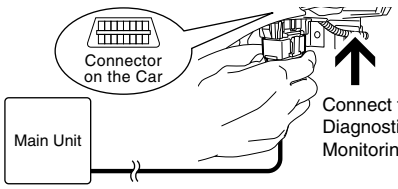
※1 If a separate device is already connected to the Diagnostic Monitoring Connector, it is possible to connect the cable directly to the power source.

Point of Installation 2

※2 If the cable in not long enough, use the extension cable "THC-EC (sold separately for ¥1,500)".

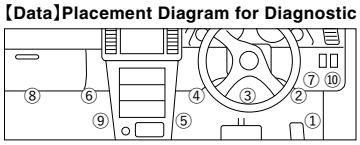
Point of Installation 1 Connect to Power

Connect the OBD Connector with key switch OFF.



※When using the Diagnostic Monitoring Connector for running tests, disconnecting the OBD connector will not cause any harm to the car.

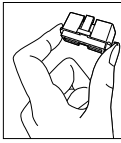
【Data】Placement Diagram for Diagnostic Monitoring Connector



TOYOTA	①②③④⑦	MAZDA	②④⑩
NISSAN	①②③④⑤⑦	SUBARU	②③
HONDA	②④⑤⑥⑧⑨	SUZUKI	②④
MITSUBISHI	②③④⑤	DAIHATSU	②③④⑤
BMW,MINI	②③④⑤	VW,AUDI	②③④

①By the accelerator pedal
②At the right foot of the driver seat (with lid)
③At foot of driver seat in the center
④At the left foot of the driver seat (with lid)
⑤At the right side of the center console
⑥At the right foot of the passenger seat
⑦Behind the panel by the steering (with lid)
⑧At the left foot of the passenger seat
⑨At the left side of the center console
⑩Panel to right of steering wheel (upper part of small storage box)

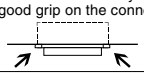
【Reference 1】Notes about using the OBD Connector.

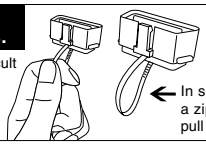


Make sure to grip the distended portions when pulling it out or inserting it.

If you unable to get a grip on the distended portions.

With some car models it may be difficult to get a good grip on the connector.





In such cases, use a zip tie to push or pull the connector.

⚠ CAUTION

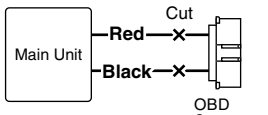
Do not pull on the wires when trying to remove the connector; the wires may become disconnected.

Point of Installation 2 If Power comes from Other Source

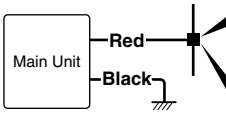
If the diagnostic monitoring connector cannot be used for safety purposes when the key is ON under normal conditions please follow the wiring directions as written below.

1

Cut the black and red wires coming from the OBD connector and wire separately as necessary.



2



■ = Use Cut Connector (included)

Normal Power (Permanent 12V)
Display OFF linked to ECU

IGN (12V with key ON)
Display OFF linked to key

About Wiring for Reverse

By wiring to reverse, it is possible when in SPORTS Mode to automatically switch to NORMAL Mode when the gear is put into R (Reverse).

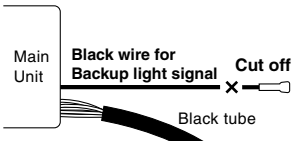
⚠ Usually there is no need to wire to reverse.

Usually when using reverse the degree of acceleration is at most about 10%; in this range there is hardly any change so it is not necessary to wire for using reverse.

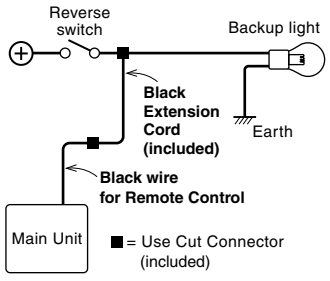
Wiring place: Backup Light Signal	Check Wiring
When key is ON (engine not running) and in **P** (Parking) or **N** (Neutral) = 0V **R** (Reverse) = 12V	 When the reverse signal is input, no matter which mode it is in the dot will light up; only when in SP Mode will it switch to NORMAL Mode.

Wiring Method

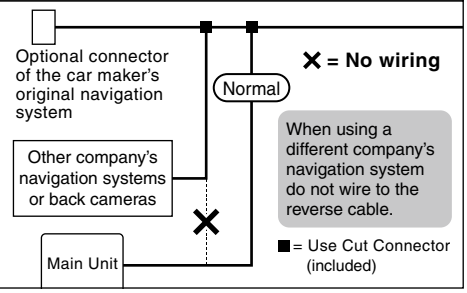
Pull out the black wire from the black tube in which the wires are bundles and cut off the insulation tube at the tip. Connect the supplied extension wire to the cut off black wire and wire to signal for the backup light.



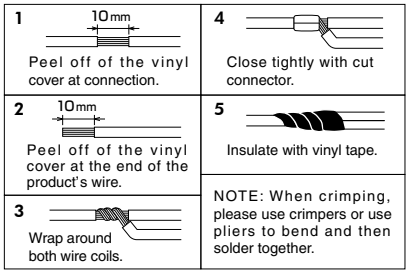
If wiring to the backup light signal



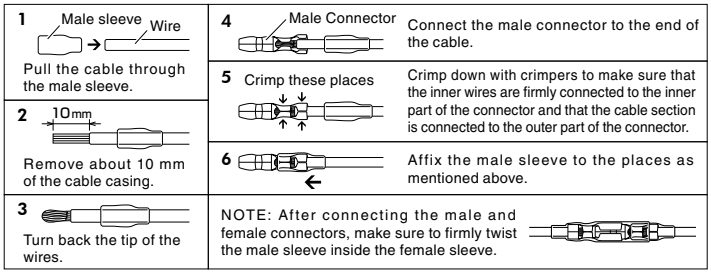
If wiring to the optional connector of the genuine navigation system


Optional connector of the car maker's original navigation system
Other company's navigation systems or back cameras
Normal
✕ = No wiring
When using a different company's navigation system do not wire to the reverse cable.
Main Unit
■ = Use Cut Connector (included)

【Reference 2】 How to use the Connectors


1
10mm
Peel off of the vinyl cover at connection.
2
10mm
Peel off of the vinyl cover at the end of the product's wire.
3
Wrap around both wire coils.
4
Close tightly with cut connector.
5
Insulate with vinyl tape.
NOTE: When crimping, please use crimpers or use pliers to bend and then solder together.

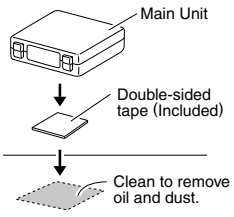
【Reference 3】 How to use the Male Connectors


1
Male sleeve
Wire
Pull the cable through the male sleeve.
2
10mm
Remove about 10 mm of the cable casing.
3
Turn back the tip of the wires.
4
Male Connector
Connect the male connector to the end of the cable.
5
Crimp these places
Crimp down with crimpers to make sure that the inner wires are firmly connected to the inner part of the connector and that the cable section is connected to the outer part of the connector.
6
Affix the male sleeve to the places as mentioned above.
NOTE: After connecting the male and female connectors, make sure to firmly twist the male sleeve inside the female sleeve.

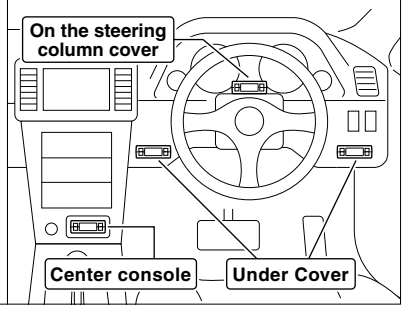
procedure2 Installing The Product

(How to Install)

Affix with double-sided tape to a position which is easy to see and which allows for easy operation.



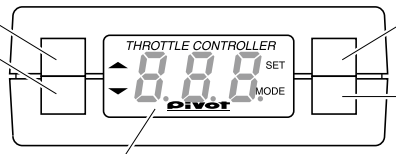
(Example of Installation)



⚠ Please be sure to bundle away all wires with tape, etc...

It is very dangerous to pull tangled wires by force or allow tangled wires to interfere with driving.

Part Names



1 UP Switch

2 DOWN Switch

- For Adjusting the Change Ratio for each Mode.
- For Mode Settings when Restarting the Engine.

3 Display

- Mode Display
- Degree of Acceleration Display (10 - 100%)
- Settings Displays

4 SET Switch

- For Settings

5 MODE Switch

- For Switching Modes

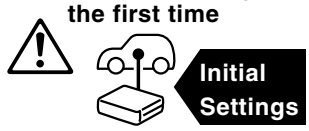
Turning off the Display

※This product is interlocked with the ECU (engine computer) power. Depending on the model of car, the display may remain on for up to 15 minutes even after the engine has been turned off; this is normal. (For connection using the OBD connector or for connection to Normal Power)

procedure 3 Initial Settings (Degree of Acceleration Setting)

Make sure to carry out these settings.

When installing for the first time



When installing into a different car

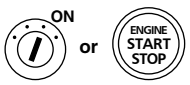
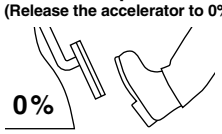
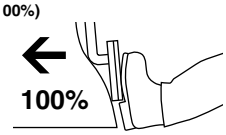
- **This operation sets the car' s accelerator characteristics into the controller unit.**
- **If the "Initial Settings" are not carried out, the unit will remain in NORMAL Mode even if the mode is switched.**
- **If this settings have been improperly made a Check Engine Light may go on.**

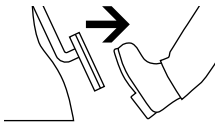
Before making the "Initial Settings"

⚠ **1. Make settings only after having completed all wiring (connector installation).**

2. Make settings with the key in the ON position (engine not running) and the gear in P (Parking) or N (Neutral).

【Making the Settings】

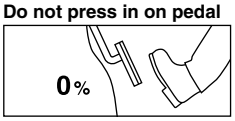
Operational Procedure	Main Unit Display Area
1 Key ON. (Engine not running)  Without braking, press down twice	nor (nor Display) ⚠ If nor does not appear, press the MODE switch until nor appears.
2 Press the SET switch for 12 seconds or longer to change the display to "0". Press until "0" appears	cAr Blink ⇩ -5- -4- ⋮ -0- Count down from 5 to 0 after the cAr blink.
3 When "0" appears release the SET switch. Release	(e.g.)※1 L1.5 Voltage Display (e.g. = L1.5)
4 Pedal is not pressed down. (Release the accelerator to 0%)  	(e.g.)※1 L1.5 Voltage Display (e.g. = L1.5)
5 Press the SET switch. 	SEt (SEt Display)
6 Pedal is completely pressed down. (Press in on the accelerator to 100%)  	(e.g.)※1 H4.5 Voltage Display (e.g. = H4.5)

Operational Procedure	Main Unit Display Area
7 With the accelerator at 100%, press the SET switch. 	SEt (SEt Display) ⇩ nor (nor will be displayed for 1 second) ⇩ 100 (100 Display)
8 Once the display changes to 100 release the accelerator. 	100 (100 Display) ⇩ nor (nor Display)
9 **Setting Completed** **If the device is re-installed into a different vehicle, make sure to carry out these settings again.** ⚠ **After having finished settings and the battery or wires have been disconnected it is not necessary to carry out "Initial Settings".**	

Check the Settings

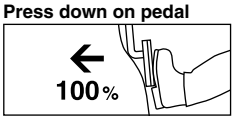
※ If the display is incorrect start again from step **2** above.

Do not press in on pedal



nor (nor Display)

Press down on pedal



100 (100 Display)

※Depending on characteristics of the accelerator or on how the accelerator is stepped on the display may read "A99" (99%)

⚠ **If Err is displayed at 7**

If after the "Err" is shown the display returns to as shown in **4** ("L1.5" or so on), it means that the degree of acceleration settings have not been confirmed properly. Re-do the settings from step **4** .

※1 **The values shown in the display will vary depending on the type of car.**

How to Operate

⚠ After completing operations do not turn the key OFF for at least two seconds. The settings will not be saved.

Switching the Mode and Change Ratio

It is possible to switch between NORMAL, ECO and SPORTS Modes, as well as, switch the change ratios respectively within ECO and SPORTS Modes.

In SPORTS Mode the larger the number the stronger the response will be and in ECO Mode the larger the number the weaker the response (less fuel consumption) will be.

1 **Key ON.**
(Engine Start)

2 **The mode will change with each pressing of the MODE Switch.**

ECO Mode ⇄ NORMAL Mode ⇄ SPORTS Mode

Ec□ ⇄ nor ⇄ SP□

※ For safety, when changing modes always go through nor (NORMAL) one time.

3 **When Switching Modes 2 and Ec□ is displayed, the ratio will change with each pressing of the UP/DOWN switch.**

Switching the Change Ratio for ECO Mode

Ec5 ⇄ (UP/DOWN) Ec4 ⇄ (UP/DOWN) Ec3 ··· Ec1

Greatest Change Ratio (−50%) (−40%) (−30%) Smallest Change Ratio (−10%)

When Switching Modes 2 and SP□ is displayed, the ratio will change with each pressing of the UP/DOWN switch.

Switching the Change Ratio for SPORTS Mode

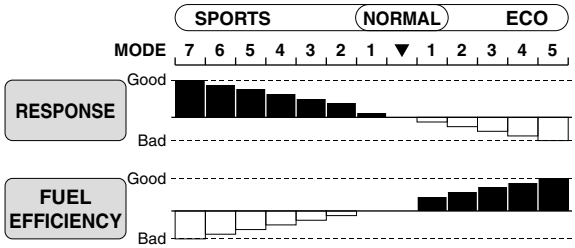
SP1 ⇄ (UP/DOWN) SP2 ⇄ (UP/DOWN) SP3 ··· SP7

Smallest Change Ratio (+10%) (+20%) (+30%) Greatest Change Ratio (+50%)

Even if the mode is switched the respective change ratio settings will not be changed.

For more details about the modes for when restarting the engine see Page 7 [Mode Settings for when Restarting the Engine].

Examples of changes in fuel consumption and response depending on change ratios



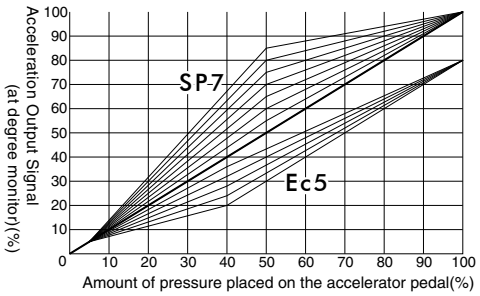
※ECO Mode increases fuel efficiency over normal conditions by suppressing rapid acceleration; if rapid acceleration is purposefully carried out fuel efficiency will be reduced.

※The changes in response will be greater as the vehicle's power is greater.

Basic Control Features

The changes within each mode will be controlled smoothly without perceptible steps.

Acceleration output signal based on amount of pressure placed on accelerator pedal



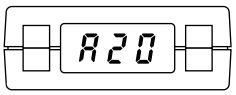
Degree of Acceleration Monitor

Displays the amount of pressure placed on the accelerator pedal. (output signal) [10 - 100%, 1% unit]

- Degree of Acceleration Monitor shows the rate of acceleration output to the ECU where 0 represents the pedal not being pressed in and 100 equals when the pedal is fully pressed down.
- The display will show when degree is above 10%.

※When in ECO Mode, even if the accelerator is stepped on a full 100% the output signal will only be 80%.

※Depending on characteristics of the accelerator or on how the accelerator is stepped on the display may read up to 99%.



Degree of Acceleration (output) 20%

USE 1 Check acceleration during ECO driving

To ensure reduced fuel consumption during acceleration the degree of acceleration should be between 15% and 25%. To further improve results use ECO Mode when wishing to save fuel.

USE 2 Check acceleration during regular driving

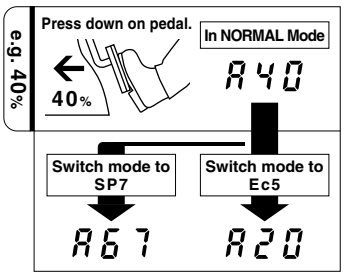
Please use to check the degree of acceleration for any type of driving, not just ECO Mode.

USE 3 Check control status

With the key in the ON position and under NORMAL Mode press in the pedal until it reaches 40% (A40), if the mode is changed to SP7 the display should read 67% (A67) and if placed in Ec5 the display should change to 20% (A20).

[See the above Graph of "Basic Control Features"]

※The actual display may differ slightly.



Mode Settings for when Restarting the Engine [Safety Start Settings]

Select from three modes in which to start the engine: “Same as Last” Mode, “Normal” Mode or “Safety” Mode.

Display	Name	Status at Engine Restart
Loc	Lock	Change Ratios and Modes when Key is turned OFF.
nor	Normal	NORMAL Mode.
SAF	Safety Mode	When the key is turned OFF and SPORTS Mode had been set at SP4 or higher it will automatically change to SP3.

About Safety Mode

If the change ratio for SPORTS Mode has been set at SP4 or higher, when the key is turned OFF, to improve safety the ratio will be changed to SP3 when the engine is restarted.
The change ratio in SPORTS Mode will automatically changed from SP4 or higher to SP3 even if when the key is turned OFF the unit is in NORMAL Mode or ECO Mode.

● **In SPORTS Mode when key is turned OFF**

SP5 OFF → **Changes automatically and starts.** → START SP3

SP2 OFF → **Starts same as last time.** → START SP2

● **In NORMAL or ECO-Mode when key is turned OFF**

EcS OFF → **Starts same as last time.** → START EcS

SP5 ····· **Changes Automatically** ····→ SP3

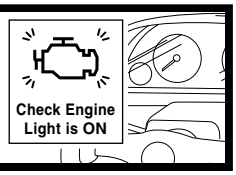
Operational Procedure	Main Unit Display Area
1 **Setting into SPORTS Mode.**	SP
2 **Press the SET switch until the current setting will be displayed.** SET **Long press the switch**	iGn **Blink for 5 seconds** ⇩ **(e.g.)** nor **The current setting will be displayed.** (Factory setting = NORMAL Mode)
3 **The mode will change with each pressing of the UP/DOWN switch.** **Press** UP DOWN	Loc (Lock) DOWN ↓ ↑ UP nor (Normal) DOWN ↓ ↑ UP SAF (Safety Mode)
4 **If no operation is carried out for 5 seconds, the display returns to show the mode.**	SP
5 **Setting Completed**	

Troubleshooting

Trouble	Possible Causes	Possible Solutions
The key switch is set to ON but the display will not light up.	●Poor connection of OBD connector. ●If wiring has been direct to power the red and black wires may have been improperly wired or there is a poor connection. ●Poor connection of Specialized Harness. ●The Specialized Harness being used is incorrect.	Please reconfirm whether wiring and connections are correct or not.
A Check Engine Light in vehicle has gone on.	The accelerator connector or Specialized Harness was disconnected with the key switch in the ON position or within 15 minutes after having turned the key to OFF.	Re-connect the disconnected connector and and follow the directions “How to Turn Off the Check Engine Light” as bellow to turn off the lamp.
	The “Initial Settings” have not been properly carried out.	Make the settings by following the directions under procedure 3 “Initial Settings” found on Page 5 of this Manual, and follow the directions “How to Turn Off the Check Engine Light” as below to turn off the lamp.
While making “Initial Settings” an Err appears in the display.	The “Initial Settings” have not been properly carried out.	Make the settings by following the directions under procedure 3 “Initial Settings” found on page 5 of this Manual.
Even if the mode is changed, the changes cannot be felt.	The “Initial Settings” have not been properly carried out.	Make the settings by following the directions under procedure 3 “Initial Settings” found on page 5 of this Manual.
The engine seems to stall easily.	The change ratio under ECO Mode is too great.	Set the change ratio under ECO Mode to a smaller value.
When in reverse, nor (dot blink) does not appear in the display.	The wiring to reverse was carried out improperly or there is a bad connection.	Please reconfirm whether wiring and connections are correct or not.
	The unit is connected to the reverse wire of a navigation system from another company.	Follow the instructions for wiring to reverse found in the User’s Manual (⇒Page 4).
	The back up lights have been changed to LED lamps.	●Replace the back up lights with the original lights. ●Do not carry out wiring for Reverse Gear.
The mode and/or the setting can not be saved.	The key was has been turned OFF immediately after having finished the settings or changing the mode.	After having made settings or changing the mode, wait for at least two seconds before turning the key OFF.
The engine has been turned OFF but the display remain on.	This product is interlocked with the ECU (engine computer) power. Depending on the model of car, the display may remain on for up to 15 minutes even after the engine has been turned off; this is normal.	

Note **How to Turn Off the Check Engine Light.**

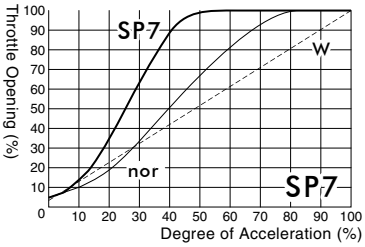
If the Check Engine Light comes on due to some operational mistake, please follow the directions below to turn it off.
①Under normal conditions, start and stop the engine several times.
②If that does not turn off the lamp, disconnect the cable from ⊖ terminal of the battery for about 10 minutes.
③If that does not turn off the lamp, please consult your local car dealer and have them turn it off.

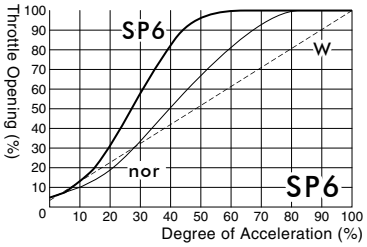


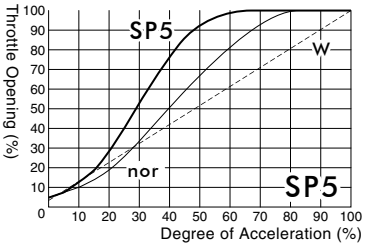
Overview of Change Characteristics

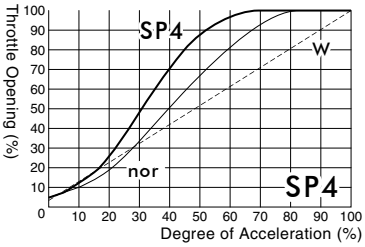
※Data are actual measurements for operations using a Swift Sports engine. ※Wire Type beginning at 3% is for when bypassing device.
※Characteristics will differ slightly depending upon make and model of car.
※**W** = For models with wire-type throttle **nor** = Standard Performance

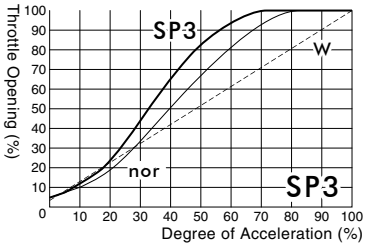
Example of Changes in SPORTS Mode

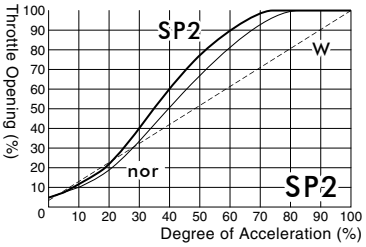


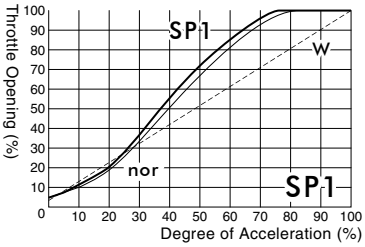






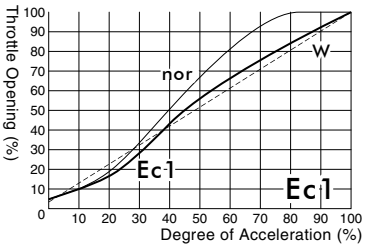


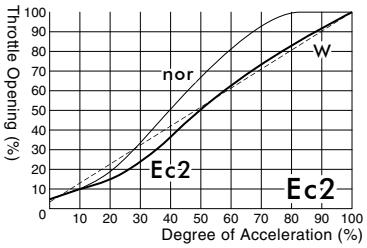


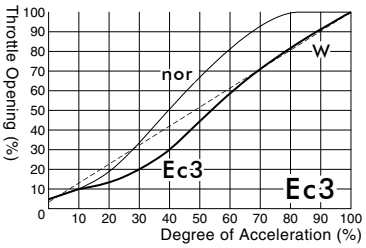


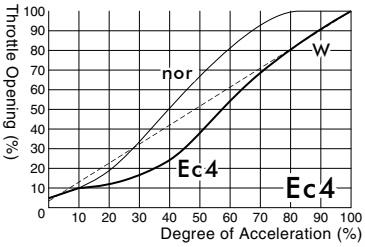
SP1 - 3 = Condition similar to wire throttle (degree of acceleration at app. 10 - 35%)
SP4 - 7 = Above + high throttle (degree of acceleration at around or above 35%)

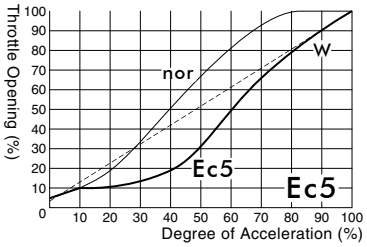
Example of Changes in ECO Mode











Ec1 - 5 = Low Acceleration
(for all degrees of acceleration)

※ Our products have already been recognized as our Industrial Property or are in the process of receiving Industrial Property status.
※ We plan in the near future to take all possible legal measures to protect against unfair competition from look-alike products using similar designs, regulating characteristics, circuitry and circuitry layout.
※ We strictly prohibit the unlicensed use of the PIVOT trademark and the unauthorized use of PIVOT User's Manual.

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